

Notice of Allowability

Application No.

10/089,192

Examiner

Hung H. Lam

Applicant(s)

TOYODA ET AL.

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment after final filed on 08/02/06.
2. ☒ The allowed claim(s) is/are 1-20.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Response to Amendment

1. The amendments, filed on 08/02/06, have been entered and made of record.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in a telephone interview with Klifton L. Kime on 08/28/06.

The application has been amended as follows:

Claim 1 (Currently Amended) A camera for high-speed image processing, comprising:
a photodetector array having a plurality of photodetectors, which are arranged two-dimensionally in a plurality of rows and in a plurality of columns and which are divided into a plurality of blocks, the photodetector array repeatedly receiving optical images and generating output signals for ~~the~~ optical images in a plurality of consecutive frames at a predetermined frame rate;

an analog-to-digital converter array receiving, from the photodetector array, the output signals for the optical images in the plurality of consecutive frames and generating digital signals in the plurality of consecutive frames, the analog-to-digital converter array including a plurality of analog-to-digital converters in one-on-one correspondence with the plurality of blocks in the photodetector array, each analog-to-digital converter performing analog-to-digital conversion of the output signals which are read sequentially from the photodetectors in ~~the~~ a corresponding block;

an image-processing unit performing predetermined processes on the plurality of consecutive frames of the digital signals, which are successively transferred from the analog-to-digital converter array and which correspond to the signals outputted from the photodetectors, thereby generating processed result signals, other than the output signals for the optical signals, indicating ~~the~~ results of the processes on the plurality of consecutive frames;

a selector selecting, among the plurality of consecutive frames, at least one frame based on the processed result signals for the plurality of consecutive frames obtained by the image-processing unit;

a signal converter converting, into an image signal of a desired frame rate, at least one of the processed result signal and the digital signal from the analog-to-digital converter array, the signal converter outputting the image signal; and

a signal conversion controller controlling the signal converter to perform the ~~image signal conversion operation~~ converting for the at least one frame selected by the selector.

Claim 16 (Currently Amended) A camera for high-speed image processing as claimed in claim 15, wherein the image processing unit performs a center of gravity calculation process on the plurality of consecutive frames of the digital signals to determine ~~the~~ locations of the centers of gravity in the consecutive frames of the digital signals, and

wherein the selector judges whether or not the locations of centers of gravity in the consecutive frames satisfy the predetermined condition, determines one frame, the locations of the center of gravity thereof satisfying the predetermined condition, and selects at least one frame including the determined one frame.

Claim 18 (Currently Amended) A camera for high-speed image processing as claimed in claim 1, wherein the image-processing unit includes a parallel processing circuit that performs a parallel process on the plurality of consecutive frames of the digital signals to generate the processed result signals indicative of whether or not the consecutive frames of the digital signals satisfy a predetermined condition, and

wherein the selector selects at least one frame that includes one frame, a processed result signal thereof indicating that the ~~subject~~ one frame satisfies the predetermined condition.

Claim 19 (Currently Amended) A camera for high-speed image processing as claimed in claim 18, wherein the parallel processing circuit performs a center of gravity calculation process on the plurality of consecutive frames of the digital signals to generate the processed result signals indicative of the locations of the centers of gravity in the consecutive frames of the digital signals, and

wherein the selector judges, based on the processed result signals, whether or not ~~the~~ locations of the centers of gravity of the consecutive frames satisfy the predetermined condition, determines one frame, the locations of the center of gravity thereof satisfying the predetermined condition, and selects at least one frame including the determined one frame.

Allowable Subject Matter

4. Claims 1-20 are allowed.
5. The following is an examiner's statement of reasons for allowance:

Regarding claim 1, the prior art of record fails to teach or fairly suggest:

“an image-processing unit performing predetermined processes on the plurality of consecutive frames of the digital signals, which are successively transferred from the analog-to-digital converter array and which correspond to the signals outputted from the photodetectors, thereby generating processed result signals, other than the output signals for the optical signals, indicating results of the processes on the plurality of consecutive frames;

a selector selecting, among the plurality of consecutive frames, at least one frame based on the processed result signals for the plurality of consecutive frames obtained by the image-processing unit;

a signal converter converting, into an image signal of a desired frame rate, at least one of the processed result signal and the digital signal from the analog-to-digital converter array, the signal converter outputting the image signal; and

a signal conversion controller controlling the signal converter to perform the converting for the at least one frame selected by the selector”, in combination with other claimed elements.

Regarding **claims 2-20**, the claims are allowed as being dependent of claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”


Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7367. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NGOC YEN VU can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HL
07/28/06



NGOC-YEN VU
SUPERVISORY PATENT EXAMINER